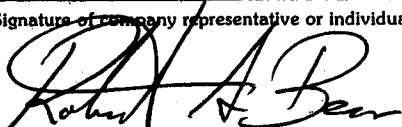
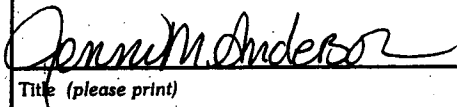




WASHINGTON STATE DEPARTMENT OF
Natural Resources

**COUNTY OR MUNICIPALITY
APPROVAL FOR
SURFACE MINING
(Form SM-6)**

NAME OF COMPANY OR INDIVIDUAL APPLICANT(S) Same as name of the exploration permit holder. (Type or print in ink.) Northwest Alloys, Inc. Addy Plantsite		TOTAL ACREAGE AND DEPTH OF PERMIT AREA (Include all acreage to be disturbed by mining, setbacks, and buffers, and associated activities during the life of the mine.) (See SM-8A.) Total mine permit area <u>433</u> acres Maximum vertical depth below pre-mining topographic grade is <u>261</u> feet Maximum depth of excavated mine floor is <u>1,549</u> feet relative to mean sea level					
MAILING ADDRESS P.O. Box 115 Addy, WA 99101-0115 Telephone (509) 935-3369		COUNTY <u>Stevens</u> No attachments will be accepted. Legal description of permit area:					
		1/4	1/4	Section	Township	Range	
		S1/2	SE1/4	11	33N	39E	
		SW1/4	SW1/4	12	33N	39E	
		W1/2	W1/2	13	33N	39E	
		NE1/4	SW1/4	13	33N	39E	
		E	1/2	14	33N	39E	
Proposed subsequent use of site upon completion of reclamation Agriculture, upland and aquatic wildlife habitat with some vertical rock faces, general recreation, plantsite stormwater management, and possible future mining (future mining would require an updated reclamation plan).							
Signature of company representative or individual applicant(s) 		Name and title of company representative (please print) Robert Bear President, Northwest Alloys, Inc.			Date signed 02/09/04		
TO BE COMPLETED BY THE APPROPRIATE COUNTY OR MUNICIPALITY							
Please answer the following questions 'yes' or 'no'.						Yes	No
1. Has the proposed surface mine been approved under local zoning and land-use regulations?						<input checked="" type="checkbox"/>	<input type="checkbox"/>
2. Is the proposed subsequent use of the land after reclamation consistent with the local land-use plan/designation?						<input checked="" type="checkbox"/>	<input type="checkbox"/>
When complete, return this form to the appropriate Department of Natural Resources regional office.							
Name of planning director or administrative official (please print) Jenni M. Anderson		Address Stevens Co. Planning 215 S. Oak - Courthouse Annex Colville, WA 99114					
Signature 							
Title (please print) Planning Supervisor							
Telephone 509-684-2401		Date 2/12/04		DNR Reclamation Permit No.			
				FOR DEPARTMENT USE ONLY			



APPLICATION FOR RECLAMATION PERMIT FORM SM-8A

Check appropriate box(es): ☐ new permit ☒ revision of existing permit ☐ transfer of permit ☒ expansion

NOTE: Do not attempt to complete this form until you have carefully read the accompanying instruction document (SM8AINST.PDF). Do not attempt to use this form as an MS Word Template unless you are familiar with the use of templates in MS Word.

1. NAME OF APPLICANT/PERMIT HOLDER(S) Northwest Alloys, Inc.			12. Are all of these mines now in compliance with RCW 78.44, WAC 332-18, and conditions of the permits? <input checked="" type="checkbox"/> yes <input type="checkbox"/> no																																																																																							
2. MAILING ADDRESS P.O. Box 115 Addy, WA 98101-0115			13. Have you ever had a surface mine operating or reclamation permit revoked? <input type="checkbox"/> yes <input checked="" type="checkbox"/> no Have you ever had a reclamation security forfeited? <input type="checkbox"/> yes <input checked="" type="checkbox"/> no If you answered yes to either of the above, list the permit number(s):																																																																																							
3. Telephone 509-935-3369 UBI No. 600-083-968-000			14. Type of proposed or existing mine: <input type="checkbox"/> pit <input checked="" type="checkbox"/> quarry Material(s) to be mined: <input type="checkbox"/> sand and gravel <input type="checkbox"/> rock or stone <input type="checkbox"/> clay <input type="checkbox"/> metal <input type="checkbox"/> limestone <input type="checkbox"/> silica X other <u>Dolomite</u> Deposit type: <input type="checkbox"/> glacial <input type="checkbox"/> river floodplain (alluvial) <input type="checkbox"/> river channel deposits <input type="checkbox"/> talus <input checked="" type="checkbox"/> bedrock <input type="checkbox"/> lode <input type="checkbox"/> unknown <input type="checkbox"/> other																																																																																							
4. NAME OF MINE Addy Dolomite Quarry			15. Total Acreage and Depth of Permit Area: (Include all acreage to be disturbed by mining, setbacks, buffers, and associated activities during the life of the mine.) (See Form SM-6.) Total area disturbed will be <u>433</u> acres. Area to be disturbed in next 36 months will be <u>0</u> acres. Maximum vertical depth below pre-mining topographic grade is <u>261</u> feet. Maximum depth of excavated mine floor is <u>1549</u> feet relative to mean sea level																																																																																							
5. Street address and milepost of surface mine 1560 A Marble Valley Road Addy, Washington 99101			16. Expected start date of mining 1973 17. Estimated number of years 30																																																																																							
6. Distance (miles) 1 Mile	7. Direction from West	8. Nearest community Addy, WA	18. Total quantity to be mined over life of mine (estimated): 22 million <input checked="" type="checkbox"/> tons, or <input type="checkbox"/> cu yds		19. Estimated annual production: 800,000 <input checked="" type="checkbox"/> tons, or <input type="checkbox"/> cu yds																																																																																					
9. COUNTY <u>Stevens</u> No attachments will be accepted. Legal Description of permit area:			20. Subsequent land use: <input type="checkbox"/> industrial <input type="checkbox"/> commercial <input type="checkbox"/> residential X agricultural forestry X wetlands and lakes X Other: general recreation, some vertical rock faces, possibly future mining (would require updated reclamation plan) Reclaimed elevation of floor of mine: East Pit: 1570 minimum, West Pit Approx 1700 minimum , feet relative to mean sea level Reclaimed elevation is shown on cross sections? <input checked="" type="checkbox"/> yes <input type="checkbox"/> no Subsequent land use is compatible with County or Municipal comprehensive plan? <input checked="" type="checkbox"/> yes <input type="checkbox"/> no County or Municipality Approval for Surface Mining (Form SM-6) attached? <input checked="" type="checkbox"/> yes <input type="checkbox"/> no SEPA Checklist required? <input checked="" type="checkbox"/> yes <input type="checkbox"/> no If any answers are no, explain:																																																																																							
<table border="1"><thead><tr><th>1/4</th><th>1/4</th><th>Section</th><th>Township</th><th>Range</th></tr></thead><tbody><tr><td>SW</td><td>SE</td><td>11</td><td>33N</td><td>39E</td></tr><tr><td>SE</td><td>SE</td><td>11</td><td>33N</td><td>39E</td></tr><tr><td>SW</td><td>SW</td><td>12</td><td>33N</td><td>39E</td></tr><tr><td>NW</td><td>NW</td><td>13</td><td>33N</td><td>39E</td></tr><tr><td>SW</td><td>NW</td><td>13</td><td>33N</td><td>39E</td></tr><tr><td>NW</td><td>SW</td><td>13</td><td>33N</td><td>39E</td></tr><tr><td>SW</td><td>SW</td><td>13</td><td>33N</td><td>39E</td></tr><tr><td>NE</td><td>SW</td><td>13</td><td>33N</td><td>39E</td></tr><tr><td>NE</td><td>NE</td><td>14</td><td>33N</td><td>39E</td></tr><tr><td>SE</td><td>NE</td><td>14</td><td>33N</td><td>39E</td></tr><tr><td>NW</td><td>NE</td><td>14</td><td>33N</td><td>39E</td></tr><tr><td>SW</td><td>NE</td><td>14</td><td>33N</td><td>39E</td></tr><tr><td>NE</td><td>SE</td><td>14</td><td>33N</td><td>39E</td></tr><tr><td>SE</td><td>SE</td><td>14</td><td>33N</td><td>39E</td></tr><tr><td>NW</td><td>SE</td><td>14</td><td>33N</td><td>39E</td></tr><tr><td>SW</td><td>SE</td><td>14</td><td>33N</td><td>39E</td></tr></tbody></table>			1/4	1/4	Section	Township	Range	SW	SE	11	33N	39E	SE	SE	11	33N	39E	SW	SW	12	33N	39E	NW	NW	13	33N	39E	SW	NW	13	33N	39E	NW	SW	13	33N	39E	SW	SW	13	33N	39E	NE	SW	13	33N	39E	NE	NE	14	33N	39E	SE	NE	14	33N	39E	NW	NE	14	33N	39E	SW	NE	14	33N	39E	NE	SE	14	33N	39E	SE	SE	14	33N	39E	NW	SE	14	33N	39E	SW	SE	14	33N	39E	10. TOTAL ACREAGE OF PERMIT AREA APPLIED FOR (include all acreage to be disturbed by mining, setbacks, buffers, and associated activities during the life of the mine.) 433 acres		
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11. Do you or any person, partnership, or corporation associated with you now hold, or have you held, a surface mining operating or reclamation permit? X yes <input type="checkbox"/> no																																																																																										

CHECKLIST OF RECLAMATION STANDARDS

If you answered yes to the above, please list:

Permit Number	Active Operation?		Reclamation current/complete?	
	Yes	No	Yes	No
Addy Plantsite, Application No. 10968	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Bluecreek, Application Number 10970	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Addy Iron Mountain, Application Number 10969	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

21. Application fee for a new reclamation permit is herewith attached?

☐ yes ☒ no

CHECKLIST OF RECLAMATION STANDARDS

Permit area has been divided into segments for mining and a mining schedule has been developed? yes ☒ no
 If no, explain: **Mining is complete.**

Permit area has been divided into segments for reclamation and a reclamation schedule has been developed? X yes ☐ no
 If no, explain: **Reclamation is already proceeding and scheduled to be complete by 2003, excluding Segment 7, which is dependent on decommissioning the crusher plant, and Segment 6, which is dependent on sales of existing stored fines.**

23A. Permit and Disturbed Area Boundaries

Boundary of the permit area has been marked on the ground with permanent boundary markers? ☐ yes ☒ no
 Explain boundary markers: **Markers are no longer in place. All mining activities have ceased.**

23B. Saving Topsoil, Subsoil, and Overburden for Reclamation

Thickness of topsoil is **0 to 5 feet** (varies across site due to varying depth to bedrock)
 Thickness of subsoil is **0 to 15 feet** (varies across site due to varying depth to bedrock)
 Depth to bedrock is **0 to 20 feet** (site depth to bedrock quite variable)
 Total volume of topsoil is **334,000** cubic yards (already stored and available for reclamation)

(Note: all required reclamation topsoil is on site, see Tables 1-1 and 1-2 in Supplement)

Total volume of subsoil is **unknown** cubic yards (no inventory ever made)

Volume of stored topsoil/subsoil is **334,000** cubic yards and will require **unknown** acres for storage. **(All topsoil is already stored, see Table 1-1 in Supplement)**

Storage areas are shown on maps and have been marked on the ground with permanent boundary markers? ☐ yes ☒ no
 (Note: all required reclamation topsoil is on site, see Table 1-1 in Supplement for Locations)

Topsoil will be salvaged? X yes ☐ no
 If no, explain:

Topsoil and overburden will be moved to reclaim an adjacent depleted segment? ☐ yes ☒ no
 If no, explain: (Note: all required reclamation topsoil is on site, see Table 1-1 in Supplement. Some segments are nearby, not adjacent to storage areas) Table 1-2 of Supplement shows a topsoil balance.

Before materials are moved, vegetation will be cleared and drainage planned for soil storage areas? X yes ☐ no
 If no, explain: **Topsoil removal and storage is complete with functional drainage in place.**

Soil storage areas will be stabilized with vegetation to prevent erosion if materials will be stored for more than one season? X yes ☐ no
 If no, explain: **Topsoil removal and storage is complete, areas were previously seeded.**

23C. Setbacks and Screens

Maximum depth of the mine will be approx. **261** feet from **1810** feet (*highest*) to **1549** feet (*lowest*) elevation relative to mean sea level.

The setback for this site will be **Not Applicable** feet wide.

Is a permanent, undisturbed buffer planned for this site? ☐ yes ☒ no
 If no, explain: **Mining has ceased. No future setbacks are required.**

Setbacks are shown on maps and have been marked on the ground with permanent boundary markers? ☐ yes ☒ no
 If no, explain: **Mining has ceased. No future setbacks are required.**

CHECKLIST OF RECLAMATION STANDARDS

Does this site have a backfilling plan that addresses the protection of adjacent property and how the final, stable slopes are to be achieved? ☐ yes ☒ no
 If no, explain: **Mining has ceased. Adjacent property not impacted or threatened. Final East Pit wall slopes are being filled in areas and compacted to stable densities.**

23D. Buffers to Protect Streams and Flood Plains

If yes, see "Additional Information Requirements for Flood Plain Mines." This document is included in the SM8AINST.PDF file.

A stream buffer of at least 200 feet has been marked on the ground with permanent boundary markers? ☐ yes ☒ no

A buffer of at least 200 feet from the 100-year flood plain has been marked on the ground with permanent boundary markers? ☐ yes ☒ no

If no, explain: **Mining has ceased. No future setbacks are required. A 200 foot setback from the East Pit to the Colville River has been maintained and is in place.**

Copy of Shoreline Permit from local government or the Dept of Ecology is attached? **Not Needed** ☐ yes ☒ no

Hydraulic Project Approval from the Department of Fish and Wildlife is attached? **Not Needed** ☐ yes ☒ no

23E. Conservation Buffers

Conservation buffers will be established for the following purpose(s): (Check all that apply)

☐ unstable slopes ☐ wildlife habitat ☐ water quality ☐ other Not Applicable, conservation setbacks are not required.

Describe the nature and configuration of the conservation buffer(s):

Conservation setbacks are shown on maps and have been marked on the ground with permanent boundary markers? ☐ yes ☐ no

23F. Ground Water

High water table depth is approx. 1620 feet X relative to mean sea level, ☐ below original surface, or ☐ unknown.

Low water table depth is approx. 1600 feet X relative to mean sea level, ☐ below original surface, or ☐ unknown.

Annual fluctuation of water table is from 1600 feet on January to 1620 feet on June.

Direction of ground water flow: Generally East

Are well logs attached? ☐ yes ☒ no

Is the aquifer perched? ☐ yes ☒ no

Is the shallowest aquifer: ☐ confined ☒ unconfined

The site will be mined: ☐ wet ☒ dry ☐ both

Describe mining method: **Quarrying (blasting)**

The site is in a:

☐ critical aquifer recharge area ☐ sole source aquifer ☐ public water supply watershed
☐ wellhead protection area ☐ special protection area ☐ designated aquifer protection area

Ground water study attached? ☐ yes ☒ no

If yes, see "Additional Information Requirements for Hydrologically Sensitive Areas." This document is included in the SM8AINST.PDF file.

If no, explain: **A groundwater study was conducted for the East Pit, Segment 1. See Introduction, References, for citation.**

CHECKLIST OF RECLAMATION STANDARDS

23G. Archeology

Are archeological/cultural resource sites present?

☐ yes ☒ no

If yes, describe how you will protect these resources:

24A. Soil Replacement

Topsoil will be saved?

☒ yes ☐ no

If no, explain:

Up to 4 feet of topsoil and (or) subsoil will be restored?

☒ yes ☐ no

If no, explain: **Preexisting natural topsoil depths were generally less than one foot in areas mined. Topsoil material, which may include some subsoil or dolomite waste rock fraction, will be placed a minimum of one foot deep in areas to be revegetated. The areas receiving topsoil replacement include all disturbed segments except portions of Segment 1, the East Pit.**

Topsoil will be restored and seedbeds prepared as necessary to promote effective revegetation and to stabilize slopes and mine floor?

☒ yes ☐ no

If "yes" give details, if "no", explain: **See Section 2.0 of Supplement**

Subsoil will be replaced to an approximate depth of _____ feet on the pit floor and a depth of _____ feet on slopes.

Topsoil will be replaced to an approximate depth of 1 feet on the pit floor and a depth of 1 feet on slopes.

Topsoil will be distributed evenly over the site?

☐ yes ☒ no

If no, explain: **Not all areas will be covered with topsoil, see Section 2.0 of Supplement.**

If topsoil is in short supply, it will be strategically placed in depressions and low areas in adequate thickness to conserve moisture and promote revegetation?

☒ yes ☐ no

If no, explain:

Topsoil will be moved when conditions are not overly wet or dry?

☒ yes ☐ no

If no, explain:

Topsoil will be imported?

☐ yes ☒ no

If yes, describe source. If no, explain: **Not required. See Topsoil Budget (Table 1-2 of Supplement)**

Synthetic topsoil made from compost, biosolids, or other amendments will be used and (or) made on site to supplement existing topsoil?

☐ yes ☒ no

If yes, explain:

Materials such as till, loess, and (or) silt are available on site that could be used to supplement topsoil for

CHECKLIST OF RECLAMATION STANDARDS

reclamation.
If yes, explain:

☐ yes ☒ no

Silt from settling ponds or a filter press will be used for reclamation?
If yes, explain:

☐ yes ☒ no

Settling pond clay slurries will be pumped or hauled to other segments for reclamation?
If yes, explain:

☐ yes ☒ no

Topsoil will be replaced with equipment that will minimize compaction, or it will be plowed, disked, or ripped following placement?
If no, explain:

☒ yes ☐ no

Topsoil will be immediately stabilized with grasses and legumes to prevent loss by erosion, slumping, or crusting?
If no, explain:

☒ yes ☐ no

Topsoil stockpile areas are shown on maps and will be marked on the ground with permanent boundary markers to protect from loss?
If no, explain: **All required reclamation topsoil is on site, see Table 1-1 in Supplement for Locations.**

☐ yes ☒ no

Segmental topsoil removal and replacement is shown on maps?
If no, explain: **Not required because reclamation is already proceeding. All required reclamation topsoil is on site, see Table 1-1 in Supplement for Locations.**

☐ yes ☒ no

Topsoil salvage and replacement plan included?
If no, explain: **A topsoil budget is shown in Table 1-2 of the Supplement, and Table 1-1 shows existing storage locations. Section 2.0 of the Supplement describes topsoil placement.**

☒ yes ☐ no

24B. Removal of Vegetation

Vegetation will be removed sequentially from areas to be mined to prevent unnecessary erosion?
If no, explain: **Not Applicable, all vegetation removal has already occurred.**

☐ yes ☐ no

Small trees and other transplantable vegetation will be salvaged for use in revegetating other segments?
If yes, give details. If no, explain: **All vegetation removal has already occurred.**

☐ yes ☐ no

Wood and other organic debris will be:
☐ recycled ☐ removed from site ☐ chipped ☐ burned ☐ buried ☐ used to synthesize topsoil or mulch
☐ other (explain) **Any viable natural woody debris will be used for reclamation.**
 Solid waste disposal, burning, and land use permits are attached?

☐ yes ☒ no

Some coarse wood (logs, stumps) and other large debris will be salvaged for fish and wildlife habitats?
If yes, give details. If no, explain: **Most of the large woody debris will be imported. See Section 2.0 of the Supplement.**

☒ yes ☐ no

CHECKLIST OF RECLAMATION STANDARDS

24C. Erosion control for Reclamation

Pit floor will slope at gentle angles toward high wall, sediment retention pond, or proper drainage? X yes ☐ no
 If yes, give details. If no, explain: See Section 2.0 of Supplement for a reclamation description of each segment.

Revegetation, sheeting, and (or) matting will be used to protect areas susceptible to erosion? X yes ☐ no
 If yes, give details. If no, explain: Erosion has not been a problem historically. See Section 2.0 of Supplement for a revegetation description of each segment.

Water control systems used for erosion control during segmental reclamation will:

Divert clean water around pit?	X yes <input type="checkbox"/> no
Trap sediment-laden runoff before it enters a stream?	X yes <input type="checkbox"/> no
Result in essentially natural conditions of volume, velocity, and turbidity?	X yes <input type="checkbox"/> no
Handle a 25-year, 24-hour peak event?	X yes <input type="checkbox"/> no
(Have you attached calculation?)	<input type="checkbox"/> yes X no
Be removed or reclaimed?	<input type="checkbox"/> yes X no

If any answers are no, explain: Additional water control systems are not needed for erosion control during the ongoing segmental reclamation. Existing storm water systems and practices will be used. There is a permanent storm-water system associated with the plantsite which will remain. East pit water will also be used for irrigation of segmental reclamation vegetation.

Will any water control systems be removed upon final reclamation? ☐ yes X no
 If yes, explain:

Water control measure will be established to prevent erosion of setbacks and neighboring properties? X yes ☐ no
 If yes, give details. If no, explain: Figure 7A shows the expected final reclamation contours and direction of storm water flow. All segments manage storm water by either infiltration or collection within the plant storm water system.

Storm-water conveyance ditches and channels will be lined with vegetation or riprap? ☐ yes X no
 If yes, give details. If no, explain: A permanent storm water ditch within the reclamation segments will connect the West Pit (Segment 3) to the East Pit (Segment 1). This ditch will be located on the inside of the connecting road. The other segments are graded, revegetated, and sloped to either contain runoff infiltrate it on site, or to collect it within the plant storm water system. See Section 1.3 of the Supplement for a description of storm water control in each segment.

Natural and other drainage channels will be kept free of equipment, wastes, stockpiles, and overburden? X yes ☐ no
 If no, explain:

25. RECLAMATION TOPOGRAPHY

25A. Final Slopes

Final slopes will be created using the cut-and-fill method? ☐ yes X no
 Explain procedure to be used: Final slopes will generally be filled, graded, blasted down, or left as is. See Section 2.0 of the Supplement for a reclamation description of each segment.

CHECKLIST OF RECLAMATION STANDARDS

Slopes will be created by mining to the final slope using the cut method? X yes ☐ no
 Explain procedure to be used: **Final slopes will generally be filled, graded, blasted down, or left as is. See Section 2.0 of the Supplement for a reclamation description of each segment.**

Slopes will vary in steepness? X yes ☐ no
 If no, explain:

Slopes will have a sinuous appearance in both profile and plan view? X yes ☐ no
 If no, explain:

Large rectilinear (that is, right angle, or straight, planar) areas will be eliminated? X yes ☐ no
 If no, explain: **Large continuous benches will be eliminated. Some benches will remain in the East Pit. See Section 2.1 of the Supplement.**

Where reasonable, tracks of the final equipment pass will be preserved and oriented to trap moisture, soil, and seeds, and to inhibit erosion? X yes ☐ no
 If no, explain:

25B. Slope Requirements for Pits and Overburden/Waste Rock Dumps (non-saleable products)

If the mine is a quarry or in hard rock, skip to Quarry section(25C).

Slopes will vary between 2 and 3 feet horizontal to 1 foot vertical or flatter, except in limited areas where steeper slopes are necessary to create sinuous topography and control drainage? X yes ☐ no
 If no, explain:

For pits, slopes will not exceed 2 feet horizontal to 1 foot vertical except as necessary to blend with adjacent natural slopes? X yes ☐ no
 Give details: **Fill slopes in the West Pit, which is filled with Di-Cal slag, will generally be 2:1 or flatter, but will be steeper on limited portions of the southeast and northwest side of the South Landfill, which are stabilized with vegetation.**

Slope stability analysis required? ☐ yes X no
If yes, see "Additional Information Requirements for Mines with Potentially Unstable or Steep Slopes." This document is included in the SM8AINST.PDF file.
 Slope stability analysis provided by

25C. Slope Requirements for Quarries and Hardrock Metal Mines

If mine is a pit in unconsolidated materials covered by Section 25B, go to Section 25D

Check the appropriate box(es)

- ☐ Slopes will not exceed 2 feet horizontal to 1 foot vertical.
- X Slopes steeper than 1 foot horizontal to 1 foot vertical are an acceptable subsequent land use as confirmed on Form SM-6.
- X Hazardous slopes or cliffs are indigenous to the immediate area and already present a potential threat to human life. Photo and maps attached to document presence of cliffs. **(Refer to the east side of the East Pit, above the Colville River)**
- X Geologic or topographic characteristics of the site preclude slopes being reclaimed at a flatter angle and are an acceptable subsequent land use as confirmed on Form SM-6.

Slope stability analysis required? **A Stability Review and Assessment Report was developed for the East Pit,** ☐ yes X no

CHECKLIST OF RECLAMATION STANDARDS

Segment 1. See Introduction, References, for citation.

If yes, see "Additional Information Requirements for Mines with Potentially Unstable or Steep Slopes." This document is included in the SM8AINST.PDF file.

Slope stability analysis provided by

Measures will be taken to limit access to the top and bottom of hazardous slopes?

☐ yes ☒ no

Describe measures, or if no, explain: No measures will be taken, Hazardous slopes or cliffs are indigenous to the immediate area and already present a potential threat to human life.

Selective blasting will be used to remove benches and walls and to create chutes, buttresses, spurs, scree slopes, and rough cliff faces that appear natural?

☒ yes ☐ no

Describe procedures, or if no, explain: See Section 2.1 of the Supplement

Reclamation blasting will be used to reduce the entire high wall to a scree or rubble slope less than 2 feet horizontal to 1 foot vertical?

☐ yes ☒ no

Blasting plan is attached?

☐ yes ☒ no

If no, explain: See Section 2.1 of the Supplement

Access to benches will be maintained for reclamation blasting?

☐ yes ☒ no

If no, explain: Final bench configuration does not allow safe reentry for blasting.

Small portions of benches will be left to provide habitat for raptors and other cliff-dwelling birds?

☒ yes ☐ no

25D. Backfilling

Slopes will require backfilling?

☒ yes ☐ no

Depth of backfilling is Varies feet. Some slopes in the East and West Pits will be backfilled to final reclamation contours. See Section 2.0 of the Supplement. The depth of backfill will vary to fill pit benches and provide sinuous reclamation contours. Pit benches were typically built at 40-foot vertical intervals.

Slope stability compaction analysis required?

☐ yes ☒ no

Compaction analysis provided by

Backfilling plan and (or) permits are attached?

☐ yes ☒ no

If no, explain: See Section 2.0 of the Supplement for a reclamation description of each segment.

Backfilling will be done with overburden material after topsoil has been separated?

☐ yes ☒ no

If no, describe composition and source of backfill material: Topsoil has already been separated and stockpiled for reclamation. Backfill for the East Pit will consist of shot rock from the floor, in areas where the pond is created. The West Pit will be backfilled with Di-Cal.

Explain method of placement of fill: Truck end dump, then spreading and compaction by D8 bulldozer.

Locations of stockpiles are shown on maps and will be marked on the ground with permanent boundary markers? Backfill is being produced from the floor of the East Pit, or consists of in-place slag.

☐ yes ☒ no

Will backfill be imported?

☐ yes ☒ no

If yes, give volumes needed to meet reclamation plan:

Areas to be backfilled are shown on maps?

☐ yes ☒ no

CHECKLIST OF RECLAMATION STANDARDS

If no, explain: **Backfilling will occur as described in Section 2.0 of the Supplement.**

All grading/backfilling will be done with clean, inert, non-organic solids? X yes ☐ no
 If yes, give details. If no, explain: **Backfill for the East Pit will consist of shot rock from the floor, in areas where the pond is created. Backfill in the West Pit is with Di-Cal Slag.**

Backfilled slopes will be compacted? X yes ☐ no
 If yes, give details. If no, explain: **Backfilled areas will be compacted with a D8 bulldozer during placement.**

Will you be backfilling into water? ☐ yes X no
 If yes, is slope stability analysis attached? ☐ yes ☐ no
 If yes, describe method:

25E. Mine Floors

Flat areas will be formed into gently rolling mounds? ☐ yes X no
 If yes, give details. If no, explain: **The flat floor area of the East Pit will be broken up with approximately 15 randomly placed hummocks, at a density of about 1/acre.**

Mine floor will be gently graded into sinuous drainage channels to preclude sheet wash erosion during intense precipitation? X yes ☐ no
 If yes, give details. If no, explain: **The general configuration of the East Pit is such that it will drain to the pond area during heavy precipitation. The mine floor, prior to backfilling for reclamation, is relatively flat.**

Mine floor and other compacted areas will be bulldozed, plowed, ripped, or blasted to foster revegetation? X yes ☐ no
 If yes, give details. If no, explain: **During quarrying the shots are designed to fracture to three feet below target floor grade. The result is a fractured zone from the pit floor down three feet. Ripping will be conducted in areas to obliterate pit roads.**

25F. Lakes, Ponds, and Wetlands

Is water currently present in the area or will the mining penetrate the water table? X yes ☐ no
If no, go to Section 25G.

Reclaimed areas below the permanent low water table in soil, sand, gravel, and other unconsolidated material will have a slope no steeper than 1.5 feet horizontal to 1 foot vertical? ☐ yes X no
 If yes, give details. If no, explain: **The pond in the East Pit is in dolomite bedrock, with portions of the perimeter backfilled or gently sloped to allow ingress/egress. Portions of the pond perimeter may exceed 1.5 to 1 in solid bedrock.**

If not already present, soils, silts, and clay-bearing material will be placed below water level to enhance revegetation? X yes ☐ no
 If yes, give details. If no, explain: **Topsoil will be placed on gentler sloping areas around the pond perimeter between about 1580 and 1620.**

Some parts of pond and lake banks will be shaped so that a person can escape from the water? X yes ☐ no

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If yes, give details. If no, explain: Portions of the pond perimeter will be slopped inward by fill. An island will be created, as will small peninsula areas.

Armored spillways or other measures to prevent undesirable overflow or seepage will be provided to stabilize bodies of water and adjacent slopes?

X yes ☐ no

If yes, give details. If no, explain: The pond will be created within the bedrock of the pit floor. The anticipated high water level of the pond (elevation 1,620) will be contained within the lower pit area. Adjacent infills have been vegetated to promote wildlife habitat.

Wildlife habitat will be developed, incorporating such measures as:

Sinuous and irregular shorelines?

X yes ☐ no

Varied water depths?

X yes ☐ no

Shallow areas less than 18 inches deep?

X yes ☐ no

Islands and peninsulas?

X yes ☐ no

Give details: See Section 2.1 of the Supplement

Ponds or basins will:

Be located in stable areas?

X yes ☐ no

Have sufficient volume for expected runoff?

X yes ☐ no

Have an emergency overflow spillway?

☐ yes X no

Spillways and outfalls will be protected (for example, rock armor) to prevent failure and erosion?

☐ yes X no

If any answers are no, explain: An emergency overflow spillway is not practical or needed given the quarry geometry and hydrogeology. The pond is expected to reach equilibrium with localized groundwater.

Proper measures will be taken to prevent seepage from water impoundments that could cause flooding outside the permitted area or adversely affect the stability of impoundment dams or adjacent slopes?

☐ yes ☐ no

If yes, give details. If no, explain: Not Applicable. There are no impoundments within the permit area which have the potential to cause flooding outside the permitted area or adversely affect the stability of impoundment dams or adjacent slopes. The only impoundments will be the East Pit pond, and the Crusher Pond in Segment 7, which is currently needed for plantsite storm water management.

Written approval from other agencies with jurisdiction to regulate impoundment of water is attached?

☐ yes X no

If no, explain: Not required.

25G. FINAL DRAINAGE CONFIGURATION

Drainage will be capable of carrying the peak flow of the 25-year, 24-hour precipitation event (*Data are available at DNR Region offices*)

X yes ☐ no

If yes, are calculations attached?

☐ yes X no

If yes, give details. If no, explain: Final reclaimed contours either contain water within the segments, allow for natural infiltration through vegetated areas, or capture it within the plant storm water system. See Section 1.3 of the Supplement for more information.

Drainages will be constructed on each reclaimed segment to control surface water, erosion, and siltation?

X yes ☐ no

Clean runoff is directed to a safe outlet?

X yes ☐ no

If either yes, give details. If no, explain: Final reclaimed contours either contain water within the segments,

CHECKLIST OF RECLAMATION STANDARDS

allow for natural infiltration through vegetated areas, or capture it within the plant storm water system.
See Section 1.3 of the Supplement for more information.

Are these shown on maps? See Figure 7A. ☒ yes ☐ no

The grade of ditches and channels will be constructed to limit erosion and siltation? ☒ yes ☐ no
If yes, give details. If no, explain: **Remaining site-wide roads, ditches, and channels will be constructed similar to existing plant-wide facilities and will include cross-drains, waterbars, culverts, etc. as needed.**

Natural-appearing drainage channels will be established upon reclamation? ☒ yes ☐ no
If yes, give details. If no, explain: **Reconstructed drainage channels will be natural appearing.**

26A. Dealing with Hazardous Materials

Hazardous materials are present at the mine site? The Environmental Landfill cells were originally constructed for disposal of state-only dangerous waste. However, the wastes that were disposed are not dangerous wastes as defined by the current state dangerous waste regulations. ☐ yes ☒ no

If no, go to Section 26B

The final ground surface drains away from any hazardous natural materials? ☐ yes ☐ no
If yes, give details. If no, explain:

Plan for handling hazardous mineral wastes indigenous to the site is attached? ☐ yes ☐ no

If no, written approval from all appropriate solid waste regulatory agencies attached? ☐ yes ☐ no

26B. Removal of Debris

All debris (garbage, 'bone piles', treated wood, old mining equipment, etc.) will be removed from the mine site? ☒ yes ☐ no
All sheds, scale houses, and other structures will be removed from the site? ☐ yes ☒ no
If either answer is yes, give details. If no, explain: **Serviceable crusher plant buildings and fuel tanks located within Segment 7 will remain to support future plant-site uses. The other crusher plant-related equipment will be decommissioned and removed (see Section 2.7 of the Supplement).**

The mine site is in: ☒ eastern Washington
☐ western Washington

The mine site is: ☐ wet ☒ dry

The average precipitation is **21 inches** per year.

Revegetation will start during the first proper growing season (fall for grasses and legumes, fall or late winter for trees and shrubs) following restoration of slopes? ☒ yes ☐ no
If yes, give details. If no, explain: **Revegetation is ongoing, concurrent with reclamation. See Sections 1.5 and 2.0 of the Supplement for more information.**

Test plots will be used to determine optimum vegetation plans? Prior site experience will be used. ☐ yes ☒ no

CHECKLIST OF RECLAMATION STANDARDS

The site will not be revegetated because:

- ☐ It is a rural area with a rainfall exceeding 30 inches annually and erosion will not be a problem (requires approval of DNR).
- ☐ Demonstration plots and areas will be used to show that active revegetation is not necessary.
- ☐ Revegetation is inappropriate for the approved subsequent use of this surface mine.

Explain:

Documentation is attached?

☒ yes ☐ no

27A. Recommended Pioneer Species

In the Sections below, check the species that will be planted at your mine site:

** indicates nitrogen-fixing species*

Western Washington Dry Areas

- | | | | |
|--|--|--|---|
| <input type="checkbox"/> alfalfa* | <input type="checkbox"/> Lupine* | <input type="checkbox"/> clover* | <input type="checkbox"/> orchard grass |
| <input type="checkbox"/> cereal rye | <input type="checkbox"/> perennial rye | <input type="checkbox"/> colonial bent grass | <input type="checkbox"/> ponderosa pine |
| <input type="checkbox"/> creeping red fescue | <input type="checkbox"/> red alder* | <input type="checkbox"/> Douglas fir | <input type="checkbox"/> shore pine |
| <input type="checkbox"/> ground cover | <input type="checkbox"/> shrubs | <input type="checkbox"/> other | |

Western Washington Wet Areas

- | | | | |
|--|--|--|---------------------------------|
| <input type="checkbox"/> birdsfoot trefoil | <input type="checkbox"/> sedges | <input type="checkbox"/> cedar | <input type="checkbox"/> tubers |
| <input type="checkbox"/> cottonwood | <input type="checkbox"/> wetland grasses | <input type="checkbox"/> creeping red fescue | <input type="checkbox"/> willow |
| <input type="checkbox"/> red alder* | <input type="checkbox"/> other | | |

Eastern Washington Dry Areas

- | | | | |
|--|---|--|---|
| <input type="checkbox"/> alder* | <input checked="" type="checkbox"/> grasses | <input checked="" type="checkbox"/> alfalfa* | <input type="checkbox"/> juniper |
| <input type="checkbox"/> black locust | <input type="checkbox"/> lodgepole pine | <input type="checkbox"/> clover | <input type="checkbox"/> lupine* |
| <input checked="" type="checkbox"/> deciduous trees | <input checked="" type="checkbox"/> ponderosa pine | <input checked="" type="checkbox"/> shrubs | <input type="checkbox"/> deep-rooted ground cover |
| <input checked="" type="checkbox"/> diverse evergreens | <input checked="" type="checkbox"/> other See Section 1.5 of the Supplement | | |

Eastern Washington Wet Areas

- | | | | |
|---------------------------------------|-------------------------------------|---------------------------------|---------------------------------|
| <input type="checkbox"/> alder* | <input type="checkbox"/> cottonwood | <input type="checkbox"/> poplar | <input type="checkbox"/> sedges |
| <input type="checkbox"/> serviceberry | <input type="checkbox"/> tubers | <input type="checkbox"/> willow | |
| <input type="checkbox"/> other | | | |

Give planting details (stems/acres of trees and shrubs, see Forest Practices manual; lbs/acre of grass, legume, or forb mixture):
See Sections 1.5 and 2.0 of the Supplement.

Describe weed control plan:

Will place vegetative matting down around the trees to reduce competition. Will apply a herbicide around the base of the conifers to reduce competition. All shrub and conifer stems will receive a plastic vexar tubing for animal protection.

27B. Planting Techniques

Revegetation at this site will require:

- Ripping and tilling? **Some compacted areas.**
- Blasting to create permeability?
- Mulching?
- Irrigation?
- Fertilization?
- Importation of clay- or humus-bearing soils?

<input checked="" type="checkbox"/> yes	<input type="checkbox"/> no
<input type="checkbox"/> yes	<input checked="" type="checkbox"/> no
<input checked="" type="checkbox"/> yes	<input type="checkbox"/> no
<input checked="" type="checkbox"/> yes	<input type="checkbox"/> no
<input checked="" type="checkbox"/> yes	<input type="checkbox"/> no
<input type="checkbox"/> yes	<input checked="" type="checkbox"/> no

CHECKLIST OF RECLAMATION STANDARDS

Other soil conditioners or amendments?

☐ yes ☒ no

Give details: Revegetation practices will vary between and within segments depending on the vegetation. See Sections 1.5 and 2.0 of the Supplement.

Trees and shrubs will be planted in topsoil or in subsoil amended with generous amounts of organic matter?
If yes, give details. If no, explain: See Sections 1.5 and 2.0 of the Supplement.

☒ yes ☐ no

Mulch will be piled around the base of trees and shrubs?

☒ yes ☐ no

High quality stock will be used?

☒ yes ☐ no

Trees and shrubs will be planted while they are dormant?

☒ yes ☐ no

Stock will be properly handled, kept cool and moist, and planted as soon as possible?

☒ yes ☐ no

Seeds will be covered with topsoil or mulch no deeper than one-half inch?

☒ yes ☐ no

If any answers are no, explain:

All required maps are attached (*See Instructions for detailed requirements*)?

☒ yes ☐ no

All required cross-sections are attached (*See Instructions for detailed requirements*)?

☒ yes ☐ no

Geologic map attached (if required)? Not required

☐ yes ☒ no

All documents submitted have the date, the name and address of the permit holder, and the application number on every page of the material? All documents are bound together.

☐ yes ☒ no

The plan contains predominantly relevant information?

☒ yes ☐ no

Have you completed the SM-6 and has it been signed by the local jurisdiction?

☒ yes ☐ no

Have you provided the SEPA checklist?

☒ yes ☐ no

Have you provided a copy of the SEPA Determination (DNS, MDNS, or DS)?

☐ yes ☒ no

Have you attached photographs? Included with Figures 5, 6, and 7.

☒ yes ☐ no

Are additional supplemental studies included? Included by reference. See Introduction, References, for citations.

☒ yes ☐ no

If yes, check the appropriate box(es) below:

☐ Archeological ☒ Geohydrologic ☐ Backfill ☒ Slope stability
☐ Topsoil ☐ Flood plain ☐ Conservational ☐ Vegetation
☐ Other

Other permits required?

☐ yes ☒ no

If yes, check the appropriate box(es) below:

☐ Shoreline permit ☐ Water Discharge Permit ☐ Solid Waste Permit
☐ Air Quality Permit ☐ NPDES or General Discharge Permit ☐ Hydraulic Project Approval
☐ Special or Conditional Use Permit ☐ Other

CHECKLIST OF RECLAMATION STANDARDS

When signed by the applicant and approved by the Department of Natural Resources, this document and the associated maps, cross sections, reclamation narrative, and other attachments will be the approved reclamation plan for this permit that the permit holder must follow. Significant variations from the approved reclamation plan may require that a new plan be submitted to the Department for approval.

The applicant shall be considered as the permit holder for this surface mine and shall be responsible for compliance with Chapter 78.44 RCW, Chapter 332-18 WAC, the approved reclamation plan and attachments, and the conditions of the permit if issued by the Department of Natural Resources.			
I hereby agree to comply with this plan. <i>Signature of applicant or company representative</i> 		Name and Title of Company Representative (Please print) Robert Bear President, Northwest Alloys, Inc.	
Date signed <div style="font-size: 1.2em; font-family: cursive;">06-02-04</div>			
SURFACE OWNERSHIP Give names, addresses, and signatures of all individuals with possessory interest in land. (attach signed copies of this page if more than one) Robert Bear President, Northwest Alloys, Inc. P.O. Box 115 Addy, WA 99101-0115 I verify that the applicant has my permission to mine from my land. <i>Signature of landowner(s)</i> <i>Date Signed</i> 06-02-04 I hereby verify that I have seen and approved this plan. <i>Signature of landowner(s)</i> <i>Date Signed</i> 06-02-04		OWNERSHIP OF RIGHTS TO REMOVE MINERALS BY SURFACE MINING Give names, addresses, and signatures of all individuals with rights. (attach signed copies of this page if more than one) Robert Bear President, Northwest Alloys, Inc. P.O. Box 115 Addy, WA 99101-0115 I verify that the applicant has my permission to mine this land. <i>Signature of rights owner(s)</i> <i>Date Signed</i> 06-02-04 I hereby verify that I have seen and approved this plan. <i>Signature of rights owner(s)</i> <i>Date Signed</i> 06-02-04	
FOR DEPARTMENTAL USE ONLY			
Date accepted		Accepted by: Title: Reclamation Permit No.	
Comments by Department:			

1.0 Reclamation

Reclamation of the Addy Plantsite mining areas is being accomplished using a segmental approach developed in close coordination with the Washington State Department of Natural Resources (DNR). The general approach is described in the March 6, 2002 and May 3, 2002 letters from Mr. Charles Gulick of the DNR to Mr. Calvin Davis of Northwest Alloys.

The reclamation has been divided into the following areas, or segments:

1. East Pit
2. South Landfill and Northeast Waste Rock Storage Area
3. West Pit
4. Northwest Waste Rock Disposal Area (Segments 4A, 4B, 4C, and 4D)
5. Future Potential Waste Rock Disposal Area
6. Fines Storage Area
7. Crushing and Quarry Office Area

The location of each of these segments is shown in Figure 6. Reclamation approaches applicable to reclamation of all segments are described below. Section 2.0 describes reclamation of each segment.

1.1 Subsequent Land Use

Subsequent land use after reclamation will consist of agriculture, upland and aquatic wildlife habitat with some vertical rock faces, general recreation, plantsite stormwater management and possibly future mining (future mining would require an updated reclamation plan). Some buildings in Segment 7 will remain to support the potential use of the adjacent plantsite for commercial applications.

1.2 Site Preparation for Reclamation

1.2.1 Boundaries and Setbacks

The mine permit boundaries have been delineated with permanent visible boundary markers. A 200-foot setback from the Colville River has been maintained on the east side of the East Pit (Segment 1 of Figure 6).

1.2.2 Topsoil and Overburden

Topsoil and overburden has already been removed and stockpiled for reclamation. A topsoil budget is provided in Section 1.4.

1.3 Grading, Erosion Control, and Storm Water Management

The plantsite has been historically operated under permit as a zero surface water discharge site. Reclamation of each segment will be done using grading and erosion control practices found effective in existing reclaimed areas.

Where feasible, final reclaimed slopes will be left roughly graded, preserving equipment tracks, depressions, and small mounds to trap clay-bearing soil and promote natural revegetation. Where reasonable, final equipment tracks will be oriented perpendicular to slopes to trap soil and seeds and to inhibit erosion. Water from the East Pit Pond will be used for establishment of reclamation vegetation.

Figure 7A shows the expected final reclamation contours and direction of storm water flow. The primary method of storm water management is to promote natural infiltration through vegetated areas. All segments will be revegetated. The arrows on Figure 7A denote expected flow direction of large storm water events, such as the 25-year, 24-hour peak storm flow. Storm water management for each segment is discussed below.

Segment 1: East Pit

The East Pit will receive storm water from the pit itself, the South Landfill (the southern lobe of Segment 2), the south half of the northern lobe of Segment 2, and from the West Pit (Segment 3), as depicted in Figure 7A. Storm water from the West Pit will be conveyed to the East Pit using rock-lined ditches located on the inside of the access roads which wrap around the southern end of the South Landfill and which continue on a negative slope into the East Pit pond. The pond water level will fluctuate in response to storm water additions and seasonal hydrologic conditions and is expected to maintain equilibrium with flow through fractures associated with the underlying dolomite.

Segment 2: South Landfill and Northeast Waste Rock Storage Area

As described above, storm water from the South Landfill, the southern lobe of Segment 2, and from the south half of the northern lobe (via the West Pit) will drain into the East Pit pond. Storm water from the north half of the northern lobe will be conveyed by overland flow into undisturbed areas of established vegetation.

Segment 3: West Pit

Storm water from the West Pit will be conveyed to the East Pit pond using rock-lined ditches located on the inside of the access roads which wrap around the southern end of the South Landfill and which continue on a negative slope into the pond.

Segment 4

Storm water from Segment 4A and from the northern portion of Segment 4B will be conveyed by overland flow into areas of established vegetation. Storm water from the southern portion of Segment 4B will combine with storm water from Segment 4C and be conveyed into the ditch located on the east side of Marble Valley Road.

Segment 5: Future Waste Rock Disposal Area

Segment 5 was never disturbed by mining activities.

Segment 6: Fines Storage Area

Storm water from the northern and southern portions of Segment 6 will be conveyed by overland flow into areas of established vegetation. Storm water from the central portion will be collected in the established plantsite storm water system and managed with plantsite storm water.

Segment 7: Crushing and Quarry Office Area

Storm water from Segment 7 will be collected in the established plantsite storm water system and managed with plantsite storm water.

1.4 Soil Replacement

Sufficient topsoil exists on the site for reclamation. The location and volume of each topsoil storage area is summarized in Table 1-1, and a topsoil budget is provided in Table 1-2.

TABLE 1-1
Northwest Alloys Addy Plantsite Topsoil Budget
Available Topsoil

Source Number	Description	Location (Segment)	Volume (CY)	Comment
1	Overburden Pile, located just north of the East Pit	2	130,500	This represents the eastern 300' x 300' x 40' portion of the overburden pile.
2	Pile located just north of the West Pit	2	62,200	This pile is currently reclaimed with grass planted. The roadway section around the pile may have additional topsoil, but the volume is unknown.
3	Material located north of Pile 2, under BPA power lines	North of 2	13,500	This pile is currently reclaimed with grass planted.
4	Material located west of West Pit under BPA power lines	West of 3	7,300	This pile is currently reclaimed with grass planted.
5	Material located on the east/northeast portion of Segment 4C, near and above the buried WWP Gas Line	In 4C	14,700	
6	Topsoil located in dike along the road between the north plantsite gate and 1/2 way to south entrance on west side of plant	East of 5	8,600	
7	Topsoil located north of Segment 6	North of 6	7,400	Area of topsoil pile is about 100 feet wide by 200 feet long. The depth averages about 10 feet.
8	Overburden/Topsoil in Segment 4B, east half	4B	90,000	Large overburden/topsoil pile.
Total			334,200	

TABLE 1-2
Northwest Alloys Addy Plantsite Topsoil Budget
Topsoil Budget:

Segment	Volume Needed (CY)	Source Number	Source Volume	Remaining in Source (CY)	Source of Remaining
1	34,400	8	90,000	55,600	8
2	5,000	8	55,600	50,600	8
3	32,800	8	50,600	17,800	8
4	19,000	1	130,500	111,500	1
6	22,000	1	111,500	89,500	1
7	29,000	1	89,500	60,500	1
Total	142,200				

1.5 Revegetation

The following are general procedures to be used for grass, tree, and shrub establishment. Segment-specific revegetation descriptions are provided in Section 2.0.

1.5.1 Grass Establishment

Grasses will be established in all disturbed segments.

Preparation for Seeding

- Filling, grading, ripping, and topsoil placement shall be conducted according to the segmental reclamation approaches described in Section 2 for each segment.
- Disturbed slopes, which can be safely track packed, shall be prior to seeding and mulching.
- The seed bed shall be uniformly scarified to a minimum depth of 3 inches.

Typical Reclamation Seed Mixture

Seed shall be labeled and meet the standards of the Federal Seed Act and the Washington State Seed Laws. All quantities are to be pure live seed (PLS = % Purity X % germination).

The grass seed mix has already been used at the site and found to be successful. The target application rate will be 160 lbs./acre. It consists of the following typical composition:

Smooth Brome	28.38%	Climax Timothy	16.94 %
Potomac Orchard	28.84 %	Spredor 3 Alfalfa	5.99%
Fawn Tall Fescue	16.94%	Inert matter	2.91%

1.5.2 Tree and Shrub Establishment

Trees and shrubs will be established in select areas. For shrubs the target density is 400 to 1,200 stems per acre. For trees the target density is 100 to 300 stems per acre. Tree and shrub establishment will generally be conducted following procedures recommended by the Natural Resource Conservation Service (See Attachment A). Plants will be irrigated through the establishment period.

Shrubs and Tree Species

The following shrubs and trees are the target species to be used:

Mock Orange

Woods rose

Snowberry

Choke Cherry

Hawthorne

Oregon Grape

Douglas Fir

Aspen

Douglas Fir

Ponderosa Pine

Western Larch

2.0 Segmental Reclamation

This section presents a description of each segment and how each segment will be reclaimed. The location of each segment is shown on Figure 6. Figure 7 shows final reclaimed contours.

2.1 Segment 1: East Pit

2.1.1 Description

Segment 1 consists of the East Pit, which was the active quarry area prior to shutdown. The pit is shown in Figures 5 and 6. The contours shown in Figures 5 and 6 are circa 1998.

2.1.2 Reclamation

The East Pit is approximately rectangular in plan shape and measures about 1,700 feet in the east-west direction and about 1,100 feet in the north-south direction as shown in Figure 6. This segment is the closest segment to the Colville River. A river setback of 200 feet from the typical high water mark has been maintained. Figure 7 presents the reclaimed contours of the East Pit.

The reclamation strategy is to breakup the rectilinear and right angle appearance of the pit walls and floor using fills and reclamation blasting. A pond will be constructed in the lowest portion of the floor area. The pond will have an irregular outline and will vary in aerial extent due to seasonal changes in precipitation amounts and groundwater level. The fill areas and the pit floor will be covered with one foot of soil material and revegetated with grasses. Shrubs and trees will be clustered in areas forming wildlife corridors intended to draw wildlife from the Colville River side of the pit to the pond (see Figure 9). One corridor will originate in the northeast pit notch, and the other near the mid-point of the east wall. These will merge on the bench above the pond. The wildlife corridors will occupy about 10 acres. Natural woody debris will also be placed in the western end of the pit and other selected niches.

In May 2003 a total of 7,500 shrubs were planted in the corridors on a 4 by 4 to 8 by 8-foot spacing, with an average total of 1,200 stems per acre (Figure 9). About 20,000 Ponderosa Pine, 2,500 Douglas Fir, and 2,500 Western Larch were planted in the surrounding areas using a 12 by 12-foot spacing, with an average total of 300 stems per acre.

The following sections describe reclamation of each of the pit walls and the floor.

West Wall

The southern half of the west wall will be filled using shot rock from the pit floor pond area to the bench at approximately the 1,660-foot contour. The toe of this fill slope will rest on the western side of the existing pit access road. The top of the fill slope will be left sinuous to breakup the rectilinear appearance of the wall.

The northwest corner area will be modified to create a saddle between the north and west walls. The base of the saddle will be at an elevation of approximately 1,735 feet. This will be accomplished by pushing down a large prism of waste rock/topsoil into the East and West pits. The material pushed into the East Pit will fill the northwest corner and will transition towards the pond. The remaining saddle ridge will be left at a variable elevation. The fill areas will be covered with one foot of topsoil, and revegetated with grasses and conifers.

North Wall

The western end of the north wall will merge with the prism fill. This will remove the right-angle rectilinear appearance of the existing corner. The eastern portion of the north wall will be filled with a variable-elevation fill generally following the bench at the 1,700-foot level using shot rock from the pit floor pond area. This fill will begin approximately 250 feet west of the northeast corner and will extend about 400 feet to the west. The toe of the fill slope will be irregular and sinuous in appearance. This fill will blend into several exposed vertical rock faces. The rock knob in the northeast corner area will be left. Between the prism fill in the northwest corner, and the fill along the base of the wall, about three-fourths of the bench topography will be removed, leaving about a 350-foot portion to naturally reclaim. Small slides have already occurred in this area. These are expected to continue and will over time randomly break up the wall/bench pattern. The fill areas will be covered with one foot of topsoil, and revegetated with grasses and conifers.

East Wall

The southeast corner of the pit will be filled to an elevation of approximately 1,740 feet, leaving the upper highwall exposed. The remaining steep to vertical portions will complement the numerous near-vertical natural slopes on the east side of the hill. The bench-topography of the remaining east wall above the 1,700-foot floor level will be obscured by placing a variable prism of fill extending from the southeast corner all the way to the northeast corner. This variable fill will generally follow the existing contour of the top of the hillside, and will leave several exposed vertical rock outcroppings to create a natural looking landform. The two treed and shrubed wildlife corridors will complement the grassed and conifered fill areas.

South Wall

The Di-Cal fill along the north side of the crusher access road will be excavated and moved to the West Pit. Portions of the 1690-foot bench will be filled to break up the bench topography. The remaining portion of the south wall will be contoured to provide a more natural appearance while leaving a narrower access road to the crusher area. The fill areas will be covered with one foot of topsoil, and revegetated with grasses and conifers.

Pond

A pond will be constructed in the western floor area by quarrying dolomite to a floor elevation of approximately 1,580 feet. The floor area of the pond will be about five acres. The pond will have an irregular outline and will vary in surface extent due to seasonal changes in precipitation amounts and groundwater level. The pond surface elevation is expected to typically fall within the range of 1,600 to 1,620. An irregularly shaped island, measuring roughly 150' by 150' will be located in the southern portion of the pond. The elevation of the island will be about 1,628. Portions of the pond perimeter will have gentle

side slopes for ease of ingress or egress created by filling with shot rock. The material pushed into the East Pit from the northwest corner will transition towards the pond. Topsoil will be placed on the gentler sloping portions of the pond perimeter above about 1,580 and revegetated with grasses. Large woody debris will be placed randomly about the shore areas. 1,200 balled and burlapped conifers were planted in May 2003 in the areas around the pond.

Pit Floor

The remaining floor area not occupied by the pond or wildlife corridors will be reclaimed by covering with 6 to 12 inches of topsoil/waste rock mixture and vegetated with grasses and conifers. Small hummocks, about one per acre, will be randomly constructed out of shot rock and topsoil/waste rock throughout the floor area. These will also be seeded with grasses. Other than roadways, the floor area will not need to be ripped because quarry blasting procedure was to over-shoot to a depth of about three feet. Large woody debris, measuring greater than one foot in diameter and six feet in length, will be randomly placed on the pit floor, with a higher density on the east side. Some stumps will also be used.

2.2 Segment 2: South Landfill and Northeast Waste Rock Storage Area

2.2.1 Description

Segment 2 is the South Landfill and the northeast waste rock storage area. The South Landfill is the southern lobe of this segment. Other than the access roads, this area was reclaimed in 1993 and revegetated with grasses and some trees and bushes. Most of the northern lobe of this section was reclaimed in 2001 in a similar fashion except for the north haul road.

2.2.2 Reclamation and Revegetation

The north haul road will be downgraded to a seeded trail road, which will still provide access from the West Pit area. The roads on the South landfill will be removed by recontouring and reseeding. Approximately 12 inches of topsoil will be placed. Exposed irrigation piping will be removed after vegetation is established. Other areas will be planted with grasses and conifers.

2.3 Segment 3: West Pit

2.3.1 Description

Segment 3 is the West Pit, which after quarrying was used as a Di-Cal slag disposal area. The West Pit also contains one of the two Environmental Landfill cells and the cone-of-depression groundwater extraction well used to capture groundwater as part of a groundwater control agreement with the Washington State Department of Ecology. The bottom of the well is at an elevation of 1,549 feet. The bottom of the pit, which is at an elevation of 1,566 feet, has been covered with 3 feet of dolomite gravel. Di-Cal slag has been placed on top of this gravel with the bottom of the Di-Cal having an elevation of about

1,569 feet. Future markets may develop for the Di-Cal slag in the West Pit. Mining of the Di-Cal would require an updated reclamation plan.

2.3.2 Reclamation and Revegetation

The West Pit will be reclaimed to the contours shown in Figure 7 by contouring the Di-Cal slag to form more natural appearing topography that is sinuous in plan and profile. A notch will be created between the West and East Pits by pushing down the fill material as described in Section 2.1.2. The Environmental Landfill will be covered with a minimum of 6 feet of slag. The entire West Pit will be covered with two feet of waste rock and a foot of topsoil material. Revegetation will be accomplished by seeding with grasses and planting shrubs. About 10 acres will also be planted with tubling conifers consisting of Ponderosa Pine, Douglas Fir, and Western Larch at a combined density of 300 stems per acre.

2.4 Segment 4: Northwest Waste Rock Disposal Area

2.4.1 Description

This segment contains waste rock disposal areas and is subdivided into sub-segments 4A, 4B, 4C, and 4D. Waste rock was disposed by removing and storing the topsoil, placing the waste rock in mounds, grading the mound, replacing the topsoil, and then revegetating.

2.4.2 Reclamation and Revegetation

The subsequent use for Segment 4A is wildlife habitat and general recreation. This segment has already been reclaimed with topsoil and grasses. Wildlife habitat will be improved by planting about 5 acres with tubling conifers consisting of Ponderosa Pine, Douglas Fir, and Western Larch at a combined density of 300 stems per acre. Segment 4B has been reclaimed for a subsequent use of farming. However, this segment contains Topsoil Source 8 (see Table 1-1). Once the topsoil is removed the disturbed area (about 6 acres) will again be reclaimed for farmland. Segment 4C, which is about 12 acres, will also be reclaimed as farmland. Segment 4D, which is a strip of land between Marble Valley Road and Segment 4C, has already been reclaimed with topsoil and grasses for a subsequent use as wildlife habitat.

2.5 Segment 5: Future Waste Rock Disposal Area

Segment 5 had been reserved as a future potential waste rock disposal area. This area was never disturbed and hence does not need to be reclaimed.

2.6 Segment 6: Fines Storage Area

2.6.1 Description

Segment 6 was the Fines Storage Area where the crushing fines were stored prior to sale. The remaining fines are being sold. Reclamation will begin following all sales.

2.6.2 Reclamation and Revegetation

This segment will be reclaimed by grading the area to match the surrounding hillside contours, covering with a foot of topsoil material, and then seeding with grasses. The central draw (about 7 acres) will also be planted with tubling conifers consisting of Ponderosa Pine, Douglas Fir, and Western Larch at a combined density of 300 stems per acre. The subsequent use is wildlife habitat.

2.7 Segment 7: Crushing Area and Quarry Office Area

2.7.1 Description

Segment 7 is the Crushing Plant and Quarry Office Area, where the rock crushing equipment and the quarry related office buildings are located.

2.7.2 Reclamation and Revegetation

The reclamation of this segment will be done after the crushing complex is decommissioned and removed. The west pond, pump house, and substation will remain for stormwater management. The quarry office buildings and the fuel tanks will remain to support future plant area operations. The two smaller ponds will be filled with rock and reclaimed. The other areas will be graded relatively flat, covered with a foot of topsoil material and revegetated with grasses.